DOCUMENT RESUME

ED 248 426 CG 017 700

AUTHOR Lichtenberg, James W.
TITLE A Computer Program to Assist Counseling Trainees in Understanding Interpersonal Influence Processes in Their Counseling.
PUB DATE 27 Apr 84
NOTE 21p.; Paper presented at the Annual Meeting of the American Educational Research Association (68th, New Orleans, LA, April 23-27, 1984).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Computer Software; *Counselor Client Relationship; *Counselor Training; Higher Education; Interaction; Program Descriptions; Training Methods
IDENTIFIERS *INTERACT (Computer Program); *Interpersonal Influence Process

ABSTRACT

This paper describes a computer program based on the premise that successful counseling can be viewed as an interpersonal influence process composed of three basic features: sequentiality, flexibility, and constraint. An introduction to the INTERACT program explains how the program analyzes counselor/client and client/counselor transitions or response contingencies. Data entry is explained and six program outputs are discussed: (1) counselor and client response frequency counts; (2) matrix of counselor-client contingency frequencies; (3) matrix of counselor-client transition probabilities; (4) counselor-counselor and client-client transition matrix; (5) information/association measures; and (6) relative influence. The benefits of the program to counseling students are discussed and technical notes are provided which describe needed hardware and availability. A series of figures presenting sample printouts for each of the program areas concludes the paper. (JAC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

A Computer Program to Assist Counseling Trainees in Understanding Interpersonal Influence Processes in Their Counseling

James W. Lichtenberg

University of Kansas

ED248426

CG017700

U.S. DEPAR MENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

James W. Lichtenberg

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the annual meeting of the American Educational Research Association, New Orleahs, LA : April 27, 1984.

A Computer Program to Assist Counseling Trainees in Understanding Interpersonal Influence Processes in Their Counseling

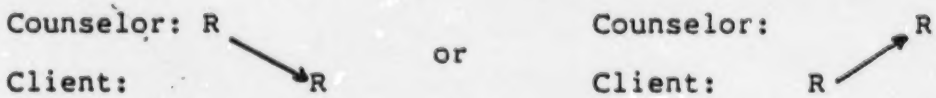
Studies of social interaction, whoever the subjects and whatever the situations, rest upon the explicit or implicit presumption of communication (verbal and/or non-verbal) between participants whereby their interchanges influence one another. The premise is certainly one with at least some degree of face validity: a person greets another and expects (and most often receives) a greeting in return; when a question is asked, one most generally receives an answer in return. Social responses are, almost by definition, assumed attributed with some degree of ability to change or in some way influence the behaviors and attitudes of others.

Both theoretically and experientially there appears little evidence to suggest that the interaction within a counseling encounter should operate on premises different from other types of social interaction; and a reasonable case has been made for viewing counseling as an interpersonal influence process (Goldstein, Heller & Sechrest, 1966; Strong, 1968; Strong & Claiborn, 1982).

Characteristic of social interaction as an influence (regardless of whether that interaction occurs within a counselor's consulting room and whether the influence attempt is overt or covert) are three basic features: sequentiality, flexibility and constraint (Raush, 1965).

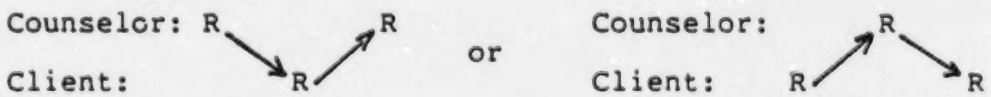
Sequentiality

Interaction is a process which occurs over time and it is not generally considered an event in and of itself. As a process, however, it consists of events (or acts) and may be conceived of as a temporal sequencing of those events. The simplest event sequence is the simple interchange: a single act (R) by one person (e.g., counselor or client) followed by a single act by the other.



The two acts are contiguous and define what Hawes (1970) and Weick (1969) refer to as a "simple interact."

More often in social interaction, and particularly in counseling, interchange sequences involve chains of interaction--the simplest interaction chain being the "double interact" (Barker & Wright, 1954). Here the response of one participant is followed by the response of other which in turn is followed by a second response from the first.



While in the simple interact the basic unit or event is the act (i.e., the response of one person), in the double interact or in chains of interactions the basic unit is the interact itself.

Flexibility

Though interactive data may frequently be conceived of as "determined," those data occur empirically as random phenomena--obeying probabilistic rules rather than strictly deterministic

laws (Hertel, 1972). This is not to deny the existence of cause-effect relationships, but only to place them within what is empirically experienced as a probabilistic perspective, rather than a strictly deterministic one. This position of "probabilistic determinism" asserts that while the effects of various interpersonal responses on another's behavior may be reasonably predictable, we are (at least for the present) limited only to probabilistic statements regarding the occurrence of interactive phenomena.

This randomness and potential for variability contribute to the complexity witnessed in social interaction and its lack of certain predictability. However, since an interactive system may be modified only to the extent that some uncertainty or "slippage" exist between events within it, this uncertainty permits flexibility and modifiability that would not be possible if a given response always led to a specific "next response."

Constraint

Social interaction may be thought of as a process of constraint on the initial variability in the interaction system (Raush, 1965). That is, a person's actions may be said to have an effect on another's if they modify (i.e., constrain/limit or increase) the likelihood of occurrence of responses of another person. As Hertel (1972) has noted, according to the theory and practice of counseling, the statements that counselors and clients make to each other do (or are at least assumed to) limit and control each other to some degree. Indeed, were this not the case, i.e. were a counselor and client not to respond

differentially/non-randomly to each other, it would be impossible to say that there was any exchange process (much less counseling) occurring between the two (Barnlund, 1982).

Within a social interaction perspective, counseling may be regarded a process of mutual and reciprocal interpersonal influence--a series of interchanges between counselors and clients over which the behavioral variation of both the counselor and client undergo modification and constraint. The social interaction perspective as operationalized for purposes of counselor training, however, has generally been "punctuated" such that there has been a decided focus on the effects of the counselor on the client and very little attention paid to the effects of clients on counselors. Beginning most systematically perhaps with the work of Truax and Carkhuff, and continuing through the work of Ivey, Danish, Egan, Brammer, Hackney and Cormier, Cormier and Cormier, and Benjamin--just to name a few, efforts have been made to identify/define and train a variety of discrete counselor behaviors which, when offered by the counselor, may be reasonably expected to lead to fairly predictable types of client responses (and change). This sort of focus in counselor education is understandable; but from a social interaction perspective, it is incomplete--leaving the effect of the client behavior on the counselor as a "blind spot" for most trainees and the impact of client behavior on the counselor's "selection" of counseling responses uncertain.

The remainder of this paper is a presentation of a computer program which has been designed to help counselors-in-training to

understand not only their impact on clients (i.e., the effect of their responses on subsequent responses by the client), but also the effect of their client's responses on them. The program also provides several experimental indices of "control/power" which may be useful in determining the relative influence of the counselor and client over each other (Lichtenberg & Powell, 1984).

Introduction to the INTERACT Program

Viewed as social interaction, the general process of counseling consists of a series of verbal and/or non-verbal exchanges between a counselor and a client. Regardless of the number or type of response classes used to characterize specific counselor and client behaviors in counseling, the process of counseling as social interaction may be construed as a sequence of transitions from counselor response to client response to counselor response and so on. Within the INTERACT program, the analysis of the counseling process consists of an analysis of these counselor-client and client-counselor transitions or response contingencies.

The program begins by requesting first input of the number of counselor response categories (=T) and next input of the number of client response categories (=C). As currently dimensioned, the program permits the designation of combinations of up to 10 different counselor and client response categories (T+P=NCAT, where NCAT$\leq$10). The program then prompts to begin

[Insert Figure 1 about here]

entry of the coded counselor/client response exchanges. These data are input in the same sequential order in which they occurred in the counseling interview. Counselor and client responses are entered by category number, with code numbers 1 through T designating counselor response codes and code numbers T+1 through T+P designating client response codes. Upon completion of data entry, the program provides the following output:

1. Counselor and client response frequency counts. Frequency tabulations of the occurrence of each of the various counselor and client response codes are provided. Inspection of these unconditional response frequencies provides information relative to the distribution of responses by both the counselor and the client, which may be useful in determining individuals' response biases (i.e., a favoring or disfavoring of particular response types by either the counselor or client).

[Insert Figure 2 about here]

2. Matrix of counselor-client contingency frequencies. A matrix of counselor-client (and client-counselor) response contingency frequencies is provided. The matrix provides information relative to the frequency of occurrence of counselor and client responses which are conditional upon the immediately preceding response by the other (i.e., the frequency with which particular client responses follow particular counselor responses, and vice versa).

[Insert Figure 3 about here]

3. Matrix of counselor-client transition probabilities. Within the interaction sequence of counselor-client response transitions, the empirical probability of a given counselor response (antecedent) being followed by any given client response (consequent)--or the probability of a given client response being followed by any given counselor response--may be determined. This probability is derived by dividing the number of occurrences of a particular contingency or transition by the number of times its antecedent occurs as the antecedent for any transitions (i.e., referring to Figure 3, the contingency frequency divided by the sum of the frequencies for its row in the contingency matrix).

A matrix of counselor-client and client-counselor transition probabilities is provided by the INTERACT program. These probabilities define the magnitide of each of the contingencies; i.e., the likelihood of occurrence of a particular client (or counselor) response following a particular counselor (or client) response. Such information is useful in understanding the conditional responding of each participant toward the other and provides a perspective on the influence of the antecedent speaker on the responding of the other. Differences between the conditional and unconditional probabilities can be noted by comparing the contingency magnitudes in this matrix with the unconditional response probabilities in Figure 2. "Significant differences" between the response probabilities in these two figures is suggestive of the social influence exerted by the antecedent speaker.

When response categories for the counselor and the client are the same, the matrix may reveal additional information: High diagonal entries (contingency magnitudes) within the counselor-client and client-counselor quadrants of the transition matrix characterizes "symmetrical" or "tit-for-tat" responding by the participants; i.e., however the counselor responds, the client is likely to follow in kind, and similarly, however the client responds, the counselor is likely to respond in kind. If, however, the diagonal entries are high only within the counselor-client quadrant of the matrix, then the counselor may be seen as demonstrating a modeling influence within the dyad; i.e., the counselor as antecedent speaker serves as a model for the client's responses. The converse is true when diagonal entries are high only in the client-counselor quadrant. Should neither quadrant display high diagonal entries but rather fairly equal contingency magnitudes across transitions, flexibility and variability characterize the interaction.

[Insert Figure 4 about here]

4. Counselor-counselor and client-client transition matrix. It can be shown that when the previous matrix is squared, the probabilities within the matrix represent the likelihood of occurrence of the each of the various responses after <u>two</u> transitions (Howard, 1971). Given an assumption of speaker switching or speaker exchange within the social interaction model represented in the INTERACT program, it should be clear that on every second transition, speech action returns to a speaker. Information available from the squared matrix, therefore, allows

for examination of the extent to which the counselor and client are consistent with themselves in terms of their responding.

High diagonal entries in the counselor-counselor and client-client quadrant of the matrix indicate response consistency on the part of the speakers. High diagonal entries for only one of the participants may be interpreted as indicative of response consistency for only that participant, while the other person varied his/her responses. When such is the case, it suggests that the responding of the first person was little influenced by the various responses of the second.

[Insert Figure 5 about here]

5. Information/association measures.

A variety of measures of association are computed on the full matrix of response-response contingencies. The measures provide indices of the relatedness or association among the various counselor and client antecedent and consequent responses for the complete matrix. The measures include: (a) X^2, (b) Cramer's statistic V, and (c) λ_b [asymmetrical lambda coefficient]. Additionally several measures derived from Shannon and Weaver's (1949) information theory by McGill (1954) and Garner and Hake (1951) are presented. These include (a) the estimated information per antecedent response, (b) the estimated information per consequent response, (c) the estimated information in a joint occurrence of an antecedent-consequent transition, (d) an estimate of the information shared or transmitted between antecedent and consequent events, (e) an index of equivocation and (f) an index of ambiguity. Of particular relevance for training purposes are the lambda

coefficient and the ambiguity index. [For a non-technical description and explanation of these information theory measures, the reader is referred to Attneave, 1959 and Losey, 1978.]

(a) Asymmetrical lambda coefficient [λ_b] (Goodman & Kruskal, 1954). This statistic is designed to measure the relative decrease in the unpredictabilty of a consequent (or set of consequents) when an antecedent (or set of antecedents) is known (Castellan, 1979). The coefficient can vary from 0 to 1. It is 0 if and only if knowing the antecedent is of no help in predicting a consequent (i.e., if the antecedents and consequents are independent); and it is 1 if there is complete predictabilty of the consequent given the antecedent.

(b) Ambiguity index (Garner & Hake, 1951; McGill, 1954). This index is a general measure of the uncertainty of a response (consequent) given its preceeding stimulus (antecedent). The larger the index for a given set of antecedents and consequents, the greater the uncertainty of the consequents (given the antecedents).

As already noted, the INTERACT program presumes speaker exchange within the social interaction framework. Consequently, counselor-counselor and client-client contingencies are precluded from occurring and appear as "structurally empty cells" within the contingency and transition probability matrices. The INTERACT program does <u>not</u> correct for these structurally empty cells when computing the above statistics on the full matrix. Therefore, caution must exercised when interpreting these measures, since the mere fact of speaker-switching is likely to

inflate these measures.

[Insert Figure 6 about here]

The same information and association measures, however, are computed separately for (a) that section of the contingency matrix in which the counselor serves as the antecedent for client responses, and (b) that section of the contingency matrix in which the client serves as the antecedent for counselor responses. The presumption of speaker exchange does not confound the measures in these instances, and the asymmetrical lambda coefficient and ambiguity index respectively may be understood as indices of (a) counselor effect on subsequent client behavior and (b) client effect on subsequent counselor behavior.

[Insert Figures 7 and 8 about here]

6. Relative influence.

Irrespective of the mutuality of influence within counseling, it has been argued (Haley, 1963; Strong & Claiborn, 1982) that the balance of influence/power within counseling must favor the counselor if counseling is to be successful. But although research on interpersonal influence in counseling has a long history (see Corrigan, Dell, Lewis & Schmidt, 1980; Heppner & Dixon, 1981), investigation of the relative influence of counselor on clients and clients on counselors is virtually non-existent. One reason for this appears to be the general approach taken toward the operationalization of "influence" in counseling. Previous studies of influence in counselor have most generally approached influence from a "trait/factor" perspective (Johnson & Matross, 1977), defining influence in terms of the characteristics of the counselor (e.g., expertness,

attractiveness, trustworthiness) and their relationship to client change. So defined, the relative influence of counselors on clients (and of clients on counselors) becomes operationalized in terms of the relative amounts of these various characteristics.

In contrast to the trait/factor view of influence is the "dynamic/interdependence" view (Johnson & Matross, 1977). From this perspective, influence is viewed as a product of the interaction between persons, rather than as a function of the static and discrete characteristics of the influencer. The basis of influence from this view is interdependency; two persons influence each other to the extent to which they mediate the behaviors of each other. Influence in this sense is a property of their relationship and their social interaction, rather than of any particular person; and relative influence (power/control) becomes defined in terms of the different degrees of dependency (or association) between counselor and client responses.

The asymmetrical lambda coefficient and the ambiguity index which are computed on the "counselor as antecedent" and "client as antecedent" portions of the contingency matrix provide for the determination of each participant's influence relative to the influence of the other. Specifically, the antecedent speaker with the larger lambda coefficient may be thought of as evidencing the greater influence in counseling, i.e., producing the greater decrease in unpredictability in the distribution of behaviors by the other. By the same token, the individual (antecedent speaker) with the smaller ambiguity index may be thought of as evidencing the greater influence on the distribution of behaviors

by the other(i.e., providing the greater decrease in uncertainty in the other's responses.)

The INTERACT Program in Counselor Education

Training counseling students in behaviors which (in general) have a demonstrated potential for leading to a therapeutic outcome is reasonable. It is important, however, to remember that the process of counseling which leads to that outcome is not simply a sequence of counselor behaviors. Counselor behaviors occur in context, and that context includes the behaviors of their clients. The process of counseling and its eventual outcome--be it for better or worse--is a function not only of what the client does in response to the counselor, but also of what the counselor does in response to the client. The responses of counselors are interdependent. "Good counseling" consists of counselors responding to their clients, not at them.

It was a premise in the development of the INTERACT program that counselors in training could benefit not only from learning to produce certain classes of responses which research has shown to contribute to favorable counseling outcomes, but also by becoming aware of the impact of those responses on their clients and the effect of their clients on their production of those responses.

Strong and Claiborn (1982) note that influencing clients is achieved by shaping the ways in which clients influence counselors. If, as the research would suggest, "good counseling" can be characterized by counselors producing "the right" responses, then it becomes important for counselors to learn to

entice clients to respond to them in ways which will favor counselors making such responses. By providing counselors-in-training with feedback regarding their interactions with clients, it is hoped that they may be better able to "manage" that interaction and influence its direction and outcome.

Technical notes

The INTERACT program is written in Z-BASIC, Zenith Data Systems' version of Microsoft BASIC and is designed to run on a Zenith Z-100 desktop computer. The program requires 6000 bytes of disk space for storage.

Copies of the INTERACT program may be obtained by writing to the author:

James W. Lichtenberg, Ph.D.
Department of Counseling Psychology
116 Bailey Hall
University of Kansas
Lawrence, KS 66045

References

Attneave, F. (1959). Applications of information theory to psychology. New York: Holt.

Barnlund, D. (1981). Toward an ecology of communication. In C. Wilder & J. Weakland (Eds.), Rigor and imagination. New York: Praeger.

Castellan, N. (1979). The analysis of behavioral sequences. In R. Cairns (Ed.), The analysis of social interactions. Hillsdale, N.J.: Lawrence Erlbaum.

Corrigan, J. Dell, D. Lewis, K., & Schmidt, L. (1980). Counseling as a social influence process: A review. Journal of Counseling Psychology, 27, 395-441.

Garner, W. & Hake, H. (1951). The amount of information in absolute judgments. Psychological Review, 58, 446-459.

Goldstein, A., Heller, K., & Sechrest, L. (1966). Psychotherapy and the psychology of behavior change. New York: Wiley.

Goodman, L. & Kruskal, W. (1954). Measures of association for cross classification. Journal of the American Statistical Association, 49, 732-764.

Haley, J. (1963). Strategies of psychotherapy. New York: Grune & Stratton.

Heppner, P. & Dixon, D. (1981). A review of the interpersonal influence process in counseling. Personnel and Guidance Journal, 59, 542-550.

Hertel, R. (1972). Application of stochastic process analyses to the study of psychotherapeutic process. Psychological Bulletin, 77, 421-430.

Howard, R. (1971). Dynamic probabilistic systems. Vol 1. Markov models. New York: Wiley.

Johnson, D. & Matross, R. (1977). Interpersonal influence in psychotherapy: A social psychological view. In A. Gurman & A. Razin (Eds.), Effective psychotherapy: A handbook of research. New York: Pergamon.

Lichtenberg, J. & Powell, L. (1984). Convergent validity of three measures of interpersonal influence in counseling. (Unpublished manuscript)

Losey, G. (1978). Information theory and communication. In P. Colgan (Ed.), Quantitative ethology. New York: Wiley.

McGill, W. (1954). Multivariate information transmission. Psychometrica, 19, 97-116.

Raush, H. (1965). Interaction sequences. Journal of Personality and Social Psychology, 2, 487-499.

Shannon, C. & Weaver, W. (1949). The mathematical theory of communication. Urbana, IL: University of Illinois Press.

Strong, S. (1968). Counseling: An interpersonal influence process. Journal of Counseling Psychology, 15, 215-224.

Strong, S. & Claiborn, C. (1982). Change through interaction. New York: Wiley.

Figure 1

```
NO. COUNSELOR RESPONSE CATEGORIES 4

NO. CLIENT RESPONSE CATEGORIES 4

ENTER SEQUENTIAL COUNSELOR-CLIENT CODES.  PRESS 'RETURN' AFTER
ENTERING EACH CODE.  ENTER '99' AS LAST CODE TO END DATA.
INPUT AND BEGIN OUTPUT.
```

Figure 2

```
COUNSELOR RESPONSE CODE FREQUENCIES


   RESPONSE CODE 1  FREQUENCY =  59
                    PROBABILITY = 0.384

   RESPONSE CODE 2  FREQUENCY =  34
                    PROBABILITY = 0.137

   RESPONSE CODE 3  FREQUENCY =  7
                    PROBABILITY = 0.069

   RESPONSE CODE 4  FREQUENCY =  1
                    PROBABILITY = 0.010

CLIENT RESPONSE CODE FREQUENCIES


   RESPONSE CODE 5  FREQUENCY =  45
                    PROBABILITY = 0.446

   RESPONSE CODE 6  FREQUENCY =  49
                    PROBABILITY = 0.485

   RESPONSE CODE 7  FREQUENCY =  3
                    PROBABILITY = 0.030

   RESPONSE CODE 8  FREQUENCY =  4
                    PROBABILITY = 0.040
```

BEST COPY

Figure 3

MATRIX OF COUNSELOR-CLIENT CONTINGENCY FREQUENCIES

0	0	0	0	35	22	0	2
0	0	0	0	7	23	2	2
0	0	0	0	3	3	1	0
0	0	0	0	0	1	0	0
27	14	3	0	0	0	0	0
28	17	4	0	0	0	0	0
1	2	0	0	0	0	0	0
2	1	0	1	0	0	0	0

Figure 4

MATRIX OF COUNSELOR-CLIENT TRANSITION PROBABILITIES

0.000	0.000	0.000	0.000	0.593	0.373	0.000	0.034
0.000	0.000	0.000	0.000	0.206	0.676	0.059	0.059
0.000	0.000	0.000	0.000	0.429	0.429	0.143	0.000
0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
0.614	0.318	0.068	0.000	0.000	0.000	0.000	0.000
0.571	0.347	0.082	0.000	0.000	0.000	0.000	0.000
0.333	0.667	0.000	0.000	0.000	0.000	0.000	0.000
0.500	0.250	0.000	0.250	0.000	0.000	0.000	0.000

Figure 5

MATRIX OF COUNSELOR-COUNSELOR AND CLIENT-CLIENT TRANS. PROBS.

0.594	0.327	0.071	0.008	0.000	0.000	0.000	0.000
0.562	0.354	0.069	0.015	0.000	0.000	0.000	0.000
0.556	0.380	0.064	0.000	0.000	0.000	0.000	0.000
0.571	0.347	0.082	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.459	0.473	0.028	0.040
0.000	0.000	0.000	0.000	0.445	0.483	0.032	0.040
0.000	0.000	0.000	0.000	0.335	0.575	0.039	0.051
0.000	0.000	0.000	0.000	0.348	0.606	0.015	0.032

BEST COPY

Figure 6

```
INFORMATION/ASSOCIATION MEASURES:COUNSELOR-CLIENT INTERACTION
ESTIMATED INFORMATION PER:
   ANTECEDENT EVENT      =  2.338663
   CONSEQUENT EVENT      =  2.340626
   JOINT A-C OCCURRENCE  =  3.574606

ESTIMATE OF SHARED OR TRANSMITTED INFORMATION =              1.104684
EQUIVOCATION (PORTION OF ANTECEDENT LOST BY CONSEQUENT)  =   1.233979
AMBIGUITY (UNCERTAINTY OF CONSEQUENT GIVEN ANTECEDENT)   =   1.235942

CRAMER V STATISTIC =  .4548482 CHI SQUARE = 291.0898 df =  49
LAMBDA b STATISTIC =  .4405595
```

Figure 7

```
INFORMATION/ASSOCIATION MEASURES:COUNSELOR=ANTECEDENT/CLIENT=CONSEQ

ESTIMATED INFORMATION PER:
   ANTECEDENT EVENT      =  1.314642
   CONSEQUENT EVENT      =  1.361098
   JOINT A-C OCCURRENCE  =  2.531136

ESTIMATE OF SHARED OR TRANSMITTED INFORMATION =              .1446033
EQUIVOCATION (PORTION OF ANTECEDENT LOST BY CONSEQUENT)  =   1.170038
AMBIGUITY (UNCERTAINTY OF CONSEQUENT GIVEN ANTECEDENT)   =   1.216495

CRAMER V STATISTIC =  .2495177 CHI SQUARE = 18.8645 df =  9
LAMBDA b STATISTIC =  .25
```

Figure 8

```
INFORMATION/ASSOCIATION MEASURES:CLIENT=ANTECEDENT/COUNSELOR=CONSEQ

ESTIMATED INFORMATION PER:
   ANTECEDENT EVENT      =  1.362955
   CONSEQUENT EVENT      =  1.31998
   JOINT A-C OCCURRENCE  =  2.61854

ESTIMATE OF SHARED OR TRANSMITTED INFORMATION =              6.439495E-02
EQUIVOCATION (PORTION OF ANTECEDENT LOST BY CONSEQUENT)  =   1.29856
AMBIGUITY (UNCERTAINTY OF CONSEQUENT GIVEN ANTECEDENT)   =   1.255585

CRAMER V STATISTIC =  .295201 CHI SQUARE = 26.1431 df =  9
LAMBDA b STATISTIC =  2.380953E-02
```


BEST COPY